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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/317,336	05/24/1999	BRYAN JEFFERY MOLES	STA.WTL.001	8986

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EXAMINER

MOORE, JAMES K

ART UNIT	PAPER NUMBER
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2686

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DATE MAILED: 12/30/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/317,336

Applicant(s)

MOLES ET AL.

Examiner

James K Moore

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 August 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 April 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on August 15, 2003 has been entered.

Response to Arguments

2. Applicant's arguments filed August 15, 2003 have been fully considered but they are not persuasive.

The applicant argues that it would not be obvious to combine Sawyer with Blakeney, Curtis, or Nelson because Sawyer is specifically designed for non-cellular phone systems. See page 14 of the Amendment. However, that does not mean that none of Sawyer's teachings can be applied in cellular phone systems. Sawyer is directed to the same general field of use, i.e., radio communication systems, as Blakely, Curtis and Nelson. Therefore, this argument is unpersuasive.

Claim Rejections - 35 USC § 103

3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

4. **Claims 1-7, and 17-20** are rejected under 35 U.S.C. 103(a) as being unpatentable over Blakeney (U.S. Patent No. 6,085,085) in view of Sawyer (U.S. Patent No. 5,548,818), Curtis (U.S. Patent No. 6,021,328) and Nelson (U.S. Patent No. 6,188,897).

Regarding **claims 1 and 17**, Blakeney discloses a multi-mode mobile station that is capable of selectively communicating over a first radio system and a second radio system, wherein the first radio system is preferred over the second radio system. The mobile station comprises means for determining whether the preferred first radio system is available to provide mobile service and accessing the preferred first radio system. See Figures 2A and 2B (blocks 54-60), col. 2, line 27 through col. 3, line 32, and col. 7, lines 15-27. Blakeney does not disclose that the mobile station comprises: means for receiving a plurality of messages over a control channel associated with the preferred first radio system; means for determining whether a threshold number of the messages are received during each of a plurality of time periods; means for accessing the second radio system in response to a determination that less than the threshold number of the messages are received during one or more of the time periods; means for determining the error rate associated with the received messages when the threshold number of the messages are received during one or more of the time periods; means for comparing the determined error rate with a predetermined threshold value; or means for accessing the second radio system in response to a determination that the determined error rate exceeds the threshold value.

Sawyer discloses a mobile station that comprises means for receiving messages (network beacon messages) over a control channel associated with a first radio system, means for determining whether a message is received during each of a plurality of time periods (timer lengths), and means for accessing a second radio system in response to a determination that less than one message is received during one of the time periods. These means allow the mobile station to switch to the second radio system if it is no longer in communication with the first radio system. See col. 6, lines 6-53. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Blakeney with Sawyer, such that the mobile station comprises means for receiving messages over a control channel associated with the first radio system, means for determining whether a message is received during each of a plurality of time periods, and means for accessing the second radio system in response to a determination that less than one message is received during one of the time periods, in order to allow the mobile station to receive radio coverage when it leaves the first radio system.

Curtis also discloses a multi-mode mobile station that is capable of selectively communicating over a first radio system (CDMA network) and a second radio system (AMPS network). The mobile station comprises means for receiving a plurality of messages over a channel (forward traffic channel) associated with the first radio system; means for determining the error rate ($FER_{forward}$) associated with the plurality of messages; comparing the determined error rate with a predetermined threshold value ($FER_{max_forward}$); and means for accessing the second radio system if the determined error rate exceeds the predetermined threshold value. These means enable a call to be

handed off to a second radio system as soon as the RF link between a mobile unit and a first radio system has degraded beyond an acceptable level. See col. 4, lines 12-55. It would have been obvious to one of ordinary skill in the art at the time of the invention to further modify the combination of Blakeney and Sawyer with Curtis, such that the mobile station comprises means for determining an error rate associated with the received messages when a message is received during the time periods, means for comparing the determined error rate against a threshold value, and means for accessing the second radio system in response to a determination that the determined error rate exceeds the threshold value, in order to handoff the mobile unit when the RF link with the first radio system has degraded beyond an acceptable level.

Curtis does not teach that the plurality of messages are messages received over a control channel. Curtis teaches that the plurality of messages are received over a traffic channel during a call. However, Nelson discloses a method for controlling roaming in a multiple service provider environment that comprises accessing a less preferred second radio system when the signal quality of a control channel of a preferred first radio system with which a mobile station is communicating has deteriorated below an acceptable level. See Abstract and col. 5, lines 58 through col. 6, line 5. One of ordinary skill in the art realizes that the advantage gained by monitoring the signal quality of a control channel over monitoring the signal quality of a traffic channel is that a control channel can be monitored on a continuous basis, either while the mobile station is in an idle state or while it is in an active state, whereas a traffic channel can be monitored only when the user of a mobile station is actively involved in

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a phone call. Thus, a mobile station which monitors the signal quality of a control channel can access and register with a second radio system when it is in an idle state or active state. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to further modify the combination of Blakeney, Sawyer and Curtis with Nelson, such that the plurality of messages which are measured are messages which are received over a control channel, so that the mobile station may be handed off when it is in an idle state or active state, thereby reducing the chance of missing an incoming call.

Regarding **claim 2**, Blakeney in view of Sawyer, Curtis and Nelson teaches all of the limitations as applied to **claim 1** above. Sawyer also discloses a method for determining whether a radio system is available that comprises determining whether an acceptable number of messages (beacon packets) are received within a predetermined time period. This prevents a mobile station from making the mistake of determining that a radio system is available if the communication with the radio system is only intermittent. See col. 10, lines 1-31. It would have been obvious to one of ordinary skill in the art at the time of the invention to further modify the combination of Blakeney, Sawyer, Curtis and Nelson, such that the step of determining whether the preferred first radio system is available comprises the step of determining whether an acceptable number of the messages are received within a predetermined time period, in order to prevent the mobile station from determining that the preferred first radio system is available if communication with the first radio system is only intermittent.

Regarding **claim 3**, Blakeney in view of Sawyer, Curtis and Nelson teaches all of the limitations as applied to **claim 1** above. Blakeney incorporates the subject matter of Ault (U.S. Patent No. 5,754,542) into the reference. See col. 2, lines 10-16. Ault discloses that CDMA system determination is performed by determining whether a pilot signal from a radio system is detectable. See col. 9, lines 37-49.

Regarding **claims 4 and 18**, Blakeney in view of Sawyer, Curtis and Nelson teaches all of the limitations as applied to **claims 1 and 17** above, and it is inherent that Nelson's control channel is a paging channel.

Regarding **claims 5 and 19**, Blakeney in view of Sawyer, Curtis and Nelson teaches all of the limitations as applied to **claims 1 and 17** above, and Curtis discloses that the error rate comprises an FER associated with the plurality of messages. See col. 4, lines 12-55.

Regarding **claim 6**, Blakeney in view of Sawyer, Curtis and Nelson teaches all of the limitations as applied to **claim 5** above, and because Nelson does not disclose that the quality of the control channel is monitored only when the mobile station is in a call state, it must be assumed that the control channel is also monitored while the mobile station is in an Idle state.

Regarding **claim 7**, Blakeney in view of Sawyer, Curtis and Nelson teaches all of the limitations as applied to **claim 5** above, and Curtis discloses that the step of accessing the second radio system is performed after the determined FER ($FER_{forward}$) exceeds the predetermined threshold value ($FER_{max_forward}$) over a plurality of consecutive time periods. See col. 4, lines 12-55.

Regarding **claim 20**, Blakeney in view of Curtis and Nelson teaches all of the limitations as applied to **claim 17** above, but does not teach that the threshold value is determined by calculating an E_c/I_o ratio associated with a pilot channel. However, the examiner takes Official Notice that it is well known in the art that the error rate of a signal received on a channel is directly correlated to the E_c/I_o ratio of the channel. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Blakeney in view of Curtis and Nelson, such that the threshold value is determined by calculating an E_c/I_o ratio associated with a pilot channel, in order to provide an accurate basis for determining whether the signal has degraded to an unacceptable level.

5. **Claims 8-10 and 14-16** are rejected under 35 U.S.C. 103(a) as being unpatentable over Sawyer in view of Curtis and Nelson.

Regarding **claim 8**, Sawyer discloses a method of selecting a radio system comprising: accessing a first radio system by a mobile station; periodically receiving a message signal (beacon packet) over a channel associated with the first radio system; determining the number of message signals received within a first predetermined time period; determining that the number of message signals received within the first predetermined time period meets a first threshold value; and accessing a second radio system in response to a determination that the number of message signal received within the first predetermined timer period does not meet a first threshold value. See col. 6, lines 6-53. Sawyer does not disclose that the mobile station is a multi-mode

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mobile station. Sawyer also does not disclose that the method comprises determining the error rate associated with the message signals received within a second predetermined time period and accessing a second radio system in response to a determination that the error rate associated with the message signals exceeds a second threshold value, or that the mobile station can determine the error rate when the mobile station is in an idle state and when the mobile station is in an active state and receiving service. However, Curtis discloses a multi-mode mobile station and a method of selectively communicating with the multi-mode mobile station over a first radio system (CDMA network) and a second radio system (AMPS network). The method comprises determining the error rate ($FER_{forward}$) associated with message signals received over a forward channel associated with the first radio system within a predetermined time period, and accessing the second radio system in response to a determination that the error rate exceeds a threshold value ($FER_{max_forward}$). The method enables a call to be handed off to a second radio system as soon as the RF link between a mobile unit and a first radio system has degraded beyond an acceptable level. See col. 4, lines 12-55. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Sawyer with Curtis, such that the method comprises determining the error rate associated with the message signals received within a second predetermined time period and accessing a second radio system in response to a determination that the error rate exceeds a second threshold value, in order to handoff the mobile unit when the RF link with the first radio system has degraded beyond an acceptable level.

Sawyer in view of Curtis does not teach that the message signals are received over a control channel. However, Nelson discloses a method for controlling roaming in a multiple service provider environment that comprises accessing a less preferred second radio system when the signal quality of a control channel of a preferred first radio system with which a mobile station is communicating has deteriorated below an acceptable level. See Abstract and col. 5, lines 58 through col. 6, line 5. One of ordinary skill in the art realizes that the advantage gained by monitoring the signal quality of a control channel over monitoring the signal quality of a traffic channel is that a control channel can be monitored on a continuous basis, either while the mobile station is in an idle state or in an active state, whereas a traffic channel can be monitored only when the user of a mobile station is actively involved in a phone call. Thus, a mobile station which monitors the signal quality of a control channel can access and register with a second radio system when it is in an idle state or an active state. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to further modify Sawyer in view of Curtis with Nelson, such that the messages signals which are measured are message signals which are received over a control channel, so that the mobile station may be handed off when it is in an idle state, thereby reducing the chance of missing an incoming call.

Regarding **claim 9**, Sawyer in view of Curtis and Nelson teaches all of the limitations as applied to **claim 8** above, and it is inherent that Nelson's control channel is a paging channel.

Regarding **claim 10**, Sawyer in view of Curtis and Nelson teaches all of the limitations as applied to **claim 8** above, and Curtis discloses that the error rate comprises an FER associated with the received message signals. See col. 4, lines 12-55.

Regarding **claim 14**, Sawyer in view of Curtis and Nelson teaches all of the limitations as applied to **claim 5** above, and because Nelson does not disclose that the quality of the control channel is monitored only when the mobile station is in a call state, it must be assumed that the control channel is also monitored while the mobile station is in an Idle state.

Regarding **claim 15**, Sawyer in view of Curtis teaches all of the limitations as applied to **claim 8** above, and Curtis discloses that the step of accessing the second radio system is performed after a determined FER ($FER_{forward}$) exceeds the predetermined threshold value ($FER_{max_forward}$) over a plurality of time periods (window of time). See col. 4, lines 12-55.

Regarding **claim 16**, Sawyer in view of Curtis teaches all of the limitations as applied to **claim 8** above, but does not teach that the second threshold value is determined by calculating an E_c/I_o ratio associated with a pilot channel. However, the examiner takes Official Notice that it is well known in the art that the error rate of a signal received on a channel is directly correlated to the E_c/I_o ratio of the channel. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Sawyer in view of Curtis, such that the second threshold value is determined by

calculating an Ec/Io ratio associated with a pilot channel, in order to provide an accurate basis for determining whether the signal has degraded to an unacceptable level.

6. **Claims 11-13** are rejected under 35 U.S.C. 103(a) as being unpatentable over Sawyer in view of Curtis and Nelson as applied to **claim 8** above, and further in view of Blakeney.

Regarding **claim 11**, Sawyer in view of Curtis and Nelson teaches all of the limitations as applied to **claim 8** above, but does not teach that the first radio system is preferred over the second radio system within the multi-mode mobile station. However, Blakeney discloses a multi-mode mobile station in which a first radio system is preferred over a second radio system for reasons of cost of service, quality of service, or support of unique features. See col. 4, lines 11-39. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Sawyer in view of Curtis and Nelson with Blakeney, such that the first radio system is preferred over the second radio system within the multi-mode mobile station, in order to allow the radio system that provides a lower cost of service, higher quality of service, and/or greater support of unique features to be selected by the mobile station.

Regarding **claims 12 and 13**, Sawyer in view of Curtis, Nelson, and Blakeney teaches all of the limitations as applied to **claim 11** above, and Blakeney further discloses that a CDMA system provides superior service to an AMPS system. See col. 5, lines 57-60. It would have been obvious to one of ordinary skill in the art at the time of the invention to further modify Sawyer in view of Curtis, Nelson, and Blakeney, such

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that the first system comprises a CDMA system and the second system comprises an AMPS system, in order to receive superior service.

Conclusion

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ken Moore, whose telephone number is (703) 308-6042. The examiner can normally be reached on Monday-Friday from 8:30 AM - 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marsha Banks-Harold, can be reached at (703) 305-4379.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

Washington, D.C. 20231

or faxed to:

(703) 872-9314 (for Technology Center 2600 only)

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA, Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377.

Ken Moore

12/17/03

JKM

Marsha D Banks-Harold
MARSHA D. BANKS-HAROLD
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600